

Title: Additively Manufactured Main Fuel Valve Housing

Abstract: Selective Laser Melting (SLM) was utilized to fabricate a liquid hydrogen valve housing typical of those found in rocket engines and main propulsion systems. The SLM process allowed for a valve geometry that would be difficult, if not impossible to fabricate by traditional means. Several valve bodies were built by different SLM suppliers and assembled with valve internals. The assemblies were then tested with liquid nitrogen and operated as desired. One unit was also burst tested and sectioned for materials analysis. The design, test results, and planned testing are presented herein.